

## DISEASE IN THE SACRO-ILIAC ARTICULATION.

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**D**ISEASE in the sacro-iliac articulation is of rare occurrence, occurring generally between the ages of seventeen and thirty. Existing apart from spondylitis in the lower lumbar spine it is of still rarer occurrence, and the diagnosis is so obscure that surgeons, careful observers, and of extended experience in joint diseases, affirm that they have never met with it.

For the most part, and perhaps always, the disease is tubercular, and is governed by the same laws of pathology, symptomatology, prognosis, and treatment that govern articular tuberculosis elsewhere. To spondylitis, however, the relation is especially close, and, as has already been stated, it occurs much more frequently associated with lumbar spondylitis than as a separate and distinct articular affection.

Traumatism appears to be frequently the exciting cause, but there can be no question that the disease occurs without any remembered injury, especially in those predisposed by heredity to tubercular infection. It may commence in either of the bones which go to form the joint, or in their neighborhood. Disease of the bones is far more frequently met with than that of other structures, and, on account of the strength and thickness of the posterior ligaments and the absence of definite subjective symptoms in an early case, it is rarely recognized before suppuration

has occurred, or the bone considerably invaded. The disease may be of the so-called moist form, and show early suppuration; or of the dry form, and run its course without suppuration; or the dry form under certain circumstances may at any time become suppurative.

Van Hook, who has made the most careful study of the literature of the subject, believes that the dry, non-suppurating form rarely imperils life, and that the prognosis is in every way good, but that in the suppurating form the prognosis is exceptionally bad. It appears to us, however, that the symptoms detailed of many of the non-suppurative cases hardly warrant the diagnosis of sacro-iliac tuberculosis, and by that much detract from the weight which they would otherwise give to a favorable prognosis; and that the fatal termination and consequent unfavorable prognosis of the suppurative cases have more frequently been due to the character of the operative interference than to the nature of the affection. There seems to us to be no good reason for believing that tuberculosis of the sacro-iliac articulation is governed in its fatalities by other laws than those governing the fatalities in tuberculosis of other joints, while our limited clinical experience with the disease goes to confirm this view. As in spondylitis, death occurs from tubercular infection of other organs quite as frequently in the dry as in the moist form of the disease, provided there be no operative interference. Death from prolonged suppuration is exceedingly rare when tubercular abscesses are subjected to the let-alone treatment, and rarer still is death from septic infection. On the other hand there can be no reasonable doubt that any operative interference increases the risks of general tubercular infection; and, unless the operation be strictly aseptic, and the prolonged subsequent dressings be kept so, the risk from septic infection of a large cavity connected with carious bone is considerable. In a word, any operation which fails to remove all tuberculous material and to close the cavity by primary union without drainage, though demanded as a last resort, should be recognized as distinctly adding to the risks to the patient's life. The records of the cases observed show that fatal termination is usually due to septicaemia, simul-

taneous or intercurrent tuberculosis elsewhere, or general miliary tuberculosis.

*Symptoms.*—The first symptom to appear is usually a peculiar attitude, a "listing" of the trunk toward the unaffected side, or, more properly speaking, a shifting of the pelvis toward

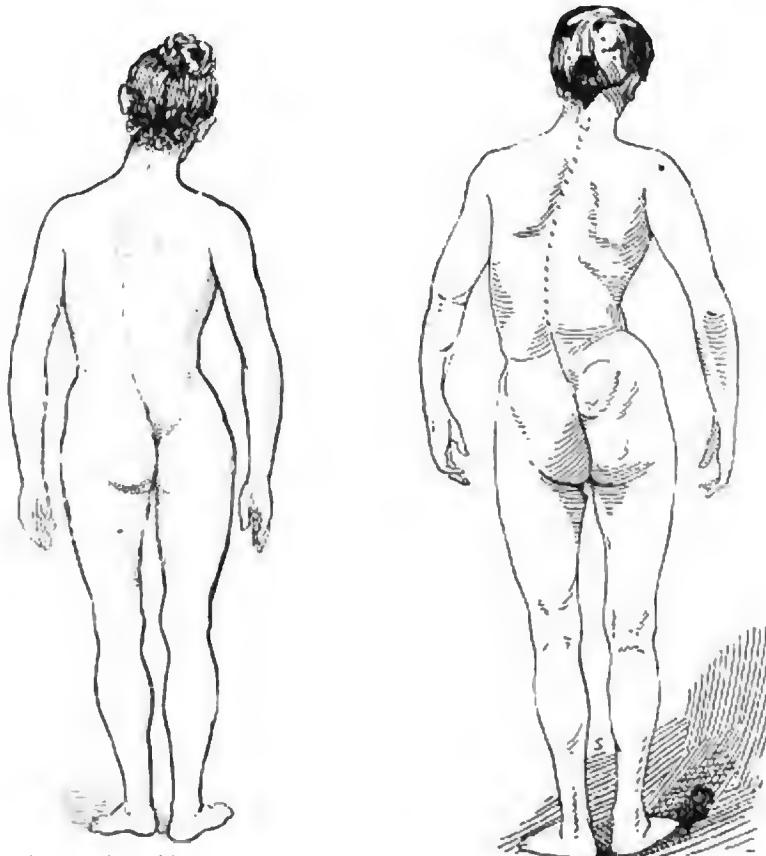


FIG. 1.—Sacro-iliac Disease  
(abduction).

FIG. 2.—Sacro-iliac Disease  
(adduction).

the affected side, and as this progresses the spine assumes a long sweeping curve with its convexity toward the sound side. Before the peculiar attitude has become sufficiently marked to cause comment the patient has usually found himself fatigued from

comparatively slight exertion, and has experienced difficulty in bending forward and rising up again. Ultimately stooping becomes quite impossible. The gait becomes of a waddling character, and as the disease advances the patient usually becomes unable to walk at all. In the early stage there is generally no flexion of the thigh, and apparent lengthening may or may not be present, while apparent shortening is sometimes observed.

The patient on standing, rests well upon the heel of the affected side, but places nearly all his weight upon the sound leg. The distant or referred pain, characteristic of tubercular arthritis elsewhere, is usually present here, but may be absent, and is more frequently characteristic of this affection than of disease in the hip or spine. If present it is usually felt in the lower abdomen, but may be complained of anywhere along the front of the thigh, and also along the area of distribution of the sciatic nerves. At first the swelling of the joint structures is often more easily made out by palpation per rectum, probably owing to the anterior sacro-iliac ligament offering much less resistance than the powerful thick posterior ligament; and early swelling, therefore, is directed toward the interior of the pelvis. Sooner or later, however, the external swelling appears and, in most cases, advances to true fluctuation, and the tubercular abscess is present as a complication. These abscesses may, and generally do, extend in every possible direction; upward in the multifidus spinæ into the lumbar region, downward along the psoas muscle or into the buttock, to the right or to the left, or directly inward to open into the bowel.

The direction in which the pus travels may be:

(1) Through the anterior ligament, keeping outside the pelvic fascia, (*a*) following the course of the sacral nerves and pyriformis out through the great sacro-sciatic foramen, and forming an abscess under the gluteus maximus; (*b*) following the curve of the sacrum behind the rectum to point in the ischio-rectal fossa, causing inflammation and adhesion of the rectum and ultimately bursting into it; (*c*) coursing under the lumbo-sacral ligament into the psoas muscle and thence into the thigh; (*d*) or into the iliacus muscle and thence into the groin.



FIG. 3.—Abscess in Sacro-iliac Disease.

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(2) Through the back part of the joint into the multifidus spinæ, creeping along it and pointing in the lumbar region, or directly over the joint itself.

Muscular atrophy of the buttock and thigh muscles is uniformly present. Deep pressure over the articulation often causes pain before much, if any, swelling is noticeable, and pressing together or pulling apart of the pelvic bones also usually produces pain. This pain appears to be due more to the motion imparted than to the direct pressure exerted. At times there is a tilting of the bones one upon the other, and the joint forms a horizontal kyphosis or a deep depression. Spasmodic contraction of the psoas muscle is a pretty constant and early symptom; resulting from this the thigh becomes somewhat flexed on the pelvis and rotated outward; hence, frequent confusion with hip disease. All of the motions at the hip may appear to be restricted, but if the pelvis be steadied and the manipulations conducted with such gentleness as to not disturb the sacro-iliac joint, it will be found that, when the thigh is slightly flexed to relax the tension upon the psoas, all the hip-joint motions are normal except those which put the psoas on the stretch, namely, extension and inward rotation. In the same way the contracted psoas muscle limits the motions of the lumbar spine, and the resulting condition simulates lumbar spondylitis. Passive bending of the spine toward the affected articulation or forward when the patient is recumbent in a forward direction, if done with great gentleness and with the pelvis steadied, will by the freedom of movement exclude spondylitis from the diagnosis. The differential diagnosis is chiefly to be made from hip disease and spondylitis, and it can only be made by remembering that disease in any joint restricts, not some, but *all* its normal movements to some extent. In cases of sacro-iliac disease where the muscular spasm and pain are intense, it may not be possible at once to differentiate, especially since the disease has been seen to be coincident with hip disease, and since it is more frequently found in connection with spondylitis than existing alone. The condition may be mistaken for sciatica, or for intra-pelvic inflammation, or abscess in connection with old and recent peri-typhlitis, but a careful examination and a consideration of the history of the case should clear up these points.

*Mechanical Treatment.*—The mechanical treatment of sacro-iliac disease is not one of the most encouraging of orthopaedic problems. It consists in a more or less successful attempt at immobilization, but it is found far less easy to immobilize this joint than the hip or spine, and satisfactory immobilization by an ambulatory apparatus is practically out of the question. The ambulatory apparatuses which have seemed the most successful have aimed at the accomplishment of two things—immobilization by circumferential compression by a broad girdle, and limitation to voluntary motion by a spinal apparatus which restricts forward bending. There is no question that motion in the lumbar spine is contra-indicated, and there should also be no question that motion at the hip joint is contra-indicated, but restriction of the latter has not been attempted by ambulatory apparatus, since it would prevent the patient sitting. The fact that the girdle in a certain number of cases relieves pain, which is not relieved but too often aggravated by traction, points very suggestively to the direction of the true and false principles of the treatment of joint disease, namely, that a force which tends to immobilize, even when associated with a force which crowds together the articular surfaces, relieves pain where a force which tends to separate the joint surfaces without immobilization fails to relieve, and often increases the suffering. The mechanical treatment, then, which should be employed, is the Thomas double hip splint, with the main stems separate at such a distance that they will pass to the outer side of the posterior superior spines of the ilia, with a broad leather sling passing from one stem to the other, and reaching from the coccyx to the mid-lumbar region. Lateral wings should be attached to the stems to pass around the flank on either side, and the pelvis is to be encircled by a broad girdle of leather or webbing.

The patient is to be kept continuously recumbent until the active stage of the disease has subsided for some time. Inasmuch as this disease appears usually in adult life and but rarely in children, and inasmuch as the joint is readily accessible, we are of the opinion that as soon as suppuration occurs operative measures looking to the removal of all tubercular material are to be

considered, and that such measures are justifiable in a very much larger percentage of cases than when the disease is located at any of the other joints. It is of advantage to prevent, when possible, intra-pelvic burrowing, and this can be done without our having to reflect (as we are forced to in the case of hip or knee) upon

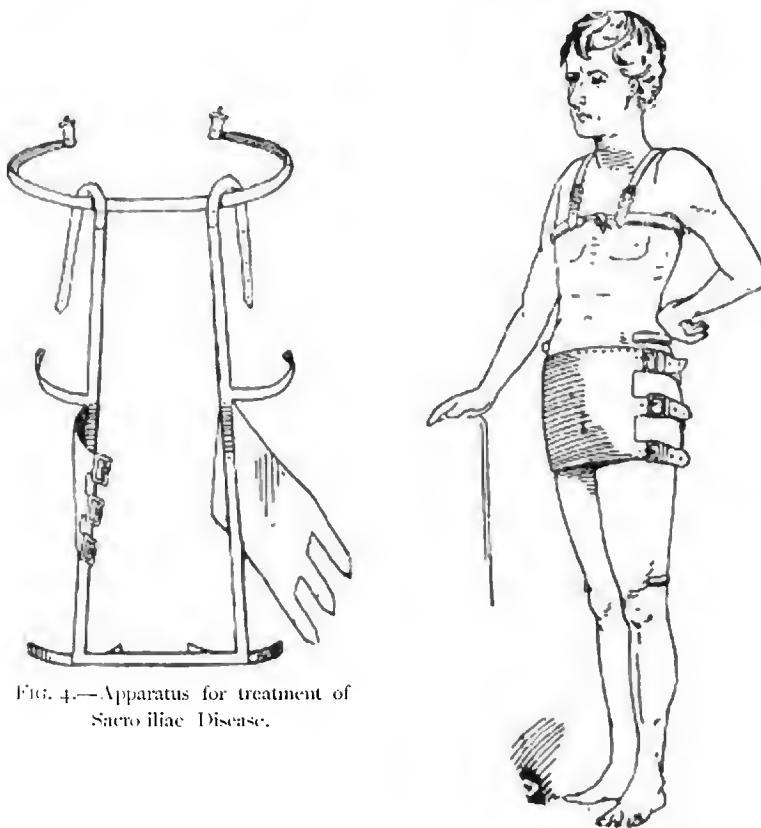


FIG. 4.—Apparatus for treatment of Sacro iliac Disease.

FIG. 5.—Patient in apparatus.

an ankylosis which is harmless, or a shortening of limb which, of course, cannot occur.

The *Operative Procedures* are determined by the facts learned from palpation externally and by the rectum. If an abscess can be detected within the pelvis the incision is made directly down upon the ilium external to this point, the bone trephined, the

abscess cavity gently and thoroughly cleansed, more bone removed, if necessary, with cutting forceps or chisel, all cut bone surface thoroughly seared with the actual cautery and the wound closed. If no point of fluctuation can be made out, the incision is determined by the œdema, or in the absence of œdema by the tender point. The bone is trephined for a caseating centre, and the subsequent steps of the operation are as above indicated. After any operative procedure the joint should be immobilized in the Thomas double hip splint, and the patient confined to bed until all local tenderness has passed away.

It is possible that there are more reasons to justify the use of the drainage tube after operations upon this joint than upon others, but we believe that a second or several repetitions of the operation entail less risk than its insertion.



FIG. 1.—Normal foot (right).



FIG. 2.—Talipes equino-varus (left).



FIG. 3.—Talipes equino-varus (left).